

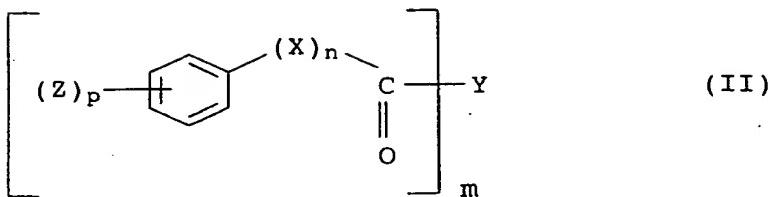
0050/49942

29

We claim:

1. The use of compounds (A) which conform to the general formula
5 (II)

10



15

where
15 X is a group of the formula $-CR^1=CR^2-$ or a carbonyl group $C=O$, where R^1 and R^2 are independently hydrogen, C_1 - to C_8 -alkyl, C_1 - to C_8 -alkoxy, C_1 - to C_8 -alkoxycarbonyl, C_1 - to C_8 -acyloxy, carboxyl, cyano, nitro, fluorine, chlorine, bromine, sulfonyl, C_1 - to C_8 -alkylsulfonyl or phenyl which may be substituted by up to 3 radicals selected from the group consisting of C_1 - to C_8 -alkyl, C_1 - to C_8 -alkoxy, C_1 - to C_8 -alkoxycarbonyl, C_1 - to C_8 -acyloxy, carboxyl, cyano, nitro, chlorine, bromine, sulfonyl and C_1 - to C_8 -alkylsulfonyl, where R^1 may also be the group $-NQ-CO-$, which is bonded with its carbonyl carbon atom to the ortho position of the adjacent phenyl ring to form a benzopyrrolidone system, and in which Q is hydrogen or a C_1 - C_8 -alkyl radical,

30

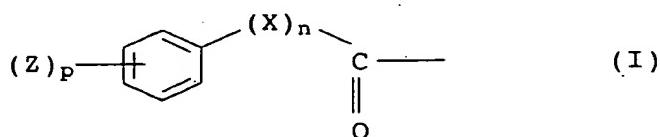
Z is a substituent selected from the group consisting of C_1 - to C_8 -alkyl, C_1 - to C_8 -Alkoxy, C_1 - to C_8 -alkoxycarbonyl, C_1 - to C_8 -acyloxy, carboxyl, cyano, nitro, fluorine, chlorine, bromine, sulfonyl, C_1 - to C_8 -alkylsulfonyl, amino, mono- or di- C_1 - to C_8 -alkylamino, carboxamido (with or without one or two C_1 - to C_8 -alkyl groups on the amide nitrogen), hydroxyl and saturated or unsaturated five- and six-membered heterocyclic radicals, which may be benzofused, and any two adjacent Z substituents may also form a saturated or unsaturated five- or six-membered ring, and in the case of $p=0$ an ortho-disposed carboxyl group may be combined with the carbonyl group present and a nitrogen atom attached directly to this carbonyl group to form a cyclic imide,

n is 0, 1, 2 or 3,

p is 0, 1, 2, 3, 4 or 5,

5 y is the radical of an aliphatic, cycloaliphatic or mixed aliphatic-aromatic group which has at least m' primary and/or secondary amino groups or m' hydroxyl groups or together at least m' primary and/or secondary amino groups and hydroxyl groups, which is capable of forming
10 amide or ester bonds with the structural unit of the general formula (I)

15



20

and the group Y mentioned may also be quaternized at tertiary and/or free primary and/or secondary nitrogen atoms present or still present,

25

m' is a number from 1 to 200, where the number m of the structural units (I) accounts for from 10 to 100% of m', with the proviso that, however, at least one structural unit (I) is present in the compounds (II),

30

the group Y being chosen from
(a) an aliphatic or cycloaliphatic oligoamine chosen from the group consisting of diethylenetriamine, dipropylenetriamine, triethylenetetramine, tetraethylenepentamine, pentaethylenhexamine,

35

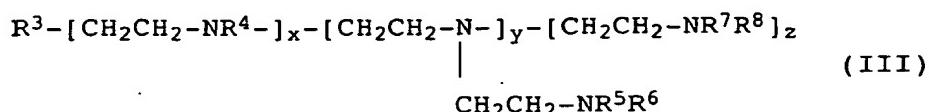
N-(2-aminoethyl)-1,3-propanediamine, N,N-dimethylethanolamine, diethanolamine, triethanolamine, 3-dimethylamino-1-propanol, N-(2-aminoethyl)ethanolamine, 3-(dimethylamino)propylamine,

40

N,N'-bis(3-aminopropyl)-1,2-ethylenediamine, N,N,N',N'-tetrakis(3-aminopropyl)-1,2-ethylenediamine, N,N,N',N'-tetrakis[3-(C₁- to C₄-alkylamino)propyl]-1,2-ethylenediamine, N,N'-bis(3-aminopropyl)piperazine and N,N'-bis[3-(C₁- to C₄-alkylamino)propyl]piperazine;

(b) a polyethyleneimine of the general formula (III)

5



10

15

25

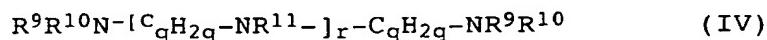
which has an average molar mass (M_w) of from 200 to 1 000 000 and wherein the radicals R^3 to R^8 are independently hydrogen, linear or branched C_1 - to C_{20} -alkyl, -alkoxy, -polyoxyethylene, -hydroxyalkyl, -(alkyl)carboxy, -phosphonoalkyl, -alkylamino radicals, C_2 - to C_{20} -alkenyl radicals or C_6 - to C_{20} -aryl, -aryloxy, -hydroxyaryl, -arylcarboxy or -arylamino radicals which may be further substituted, and R^4 and R^5 are additionally further polyethyleneimine polymer chains, and x , y and z are each independently 0 or an integer;

20

(c) a polyamidoamine which has an average molar mass (M_w) of from 500 to 100 000 000, which is obtainable by reaction of C_4 - to C_{10} -dicarboxylic acids with poly(C_2 - to C_4 -alkylene)polyamines having from 3 to 20 basic nitrogen atoms in the molecule and which has at least m' primary and/or secondary amino groups for forming amide bonds with the structural unit (I);

(d) a polyamine of the general formula (IV)

30



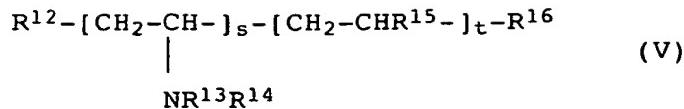
35

40

which has an average molar mass (M_w) of from 100 to 100 000 000 and wherein the radicals R^9 to R^{11} are independently hydrogen, linear or branched C_1 - to C_{20} -alkyl, -alkoxy, -polyoxyethylene, -hydroxyalkyl, -(alkyl)carboxy, -phosphonoalkyl, -alkylamino radicals, C_2 - to $-C_{20}$ -alkenyl radicals or C_6 - to C_{20} -aryl, -aryloxy, -hydroxyaryl, -arylcarboxy or -arylamino radicals which may be further substituted, q is an integer from 2 to 6 and r is an integer, wherein the alkylamino radicals mentioned may also be continued in the manner of dendrimers in the alkyl moiety;

(e) a polyvinylamine of the general formula (V)

45



- 5 which has an average molar mass (M_w) of from 300 to
 100 000 000 and wherein the radicals R^{12} to R^{16} are
 independently hydrogen, linear or branched C_1 - to
 C_{20} -alkyl, -alkoxy, -polyoxyethylene, -hydroxyalkyl,
 10 -(alkyl)carboxy, -phosphonoalkyl, -alkylamino radicals,
 C_2 - to C_{20} -alkenyl radicals or C_6 - to C_{20} -aryl, -aryloxy,
 -hydroxyaryl, -arylcarboxy or -arylamino radicals which
 may be further substituted, and R^{15} is additionally a
 15 formamidyl radical, s is an integer and t is 0 or an
 integer;
- as UV absorbers possessing affinity for textile fiber
2. A use as claimed in claim 1 of compounds (A) containing at
 20 least one structural unit (I) on textile material to protect
 the human skin against harmful UV radiation.
3. A use as claimed in claim 1 of compounds (A) containing at
 25 least one structural unit (I) to protect dyed textile
 material against fading.
4. A use as claimed in any of claims 1 to 3 of compounds (A)
 which conform to the general formula (II) and wherein the
 number m of the structural units (I) in the compounds (II) is
 30 1, 2 or 3.
5. A use as claimed in any of claims 1 to 4 of compounds (A)
 which contain at least one structural unit (I) where X is a
 35 group of the formula $-CR^1=CR^2-$ where R^1 and R^2 are
 independently hydrogen, cyano or unsubstituted phenyl or
 where R^1 is the group $-NH-CO-$, which is bonded with its
 carbonyl carbon atom to the ortho position of the adjacent
 phenyl ring to form a benzopyrrolidone system, and R^2 is also
 40 cyano, and n is 1.
6. A use as claimed in any of claims 1 to 5 of compounds (A)
 which contain at least one structural unit (I) where Z is a
 substituent selected from the group consisting of C_1 - to
 C_8 -alkoxy, amino, mono- or di- C_1 - to C_8 -alkylamino and
 45 hydroxyl and p is 1.

7. A use as claimed in any of claims 1 to 6 of compounds (A) which contain at least one structural unit (I) as UV absorbers for cellulosic textile material which possess affinity for textile fiber.
- 5
8. A method of protecting human skin against harmful UV radiation, which comprises applying compounds (A) containing structural units of the general formula (I) as set forth in any of claims 1 and 4 to 7 to textile material in the course 10 of textile finishing.
9. A method of protecting human skin against harmful UV radiation as claimed in claim 8, which comprises applying compounds (A) containing structural units of the general 15 formula (I) as set forth in any of claims 1 and 4 to 7 to textile material in the course of laundering and/or laundry pre- or aftertreatment.
10. A method of protecting dyed textile material against fading, 20 which comprises applying compounds (A) containing structural units of the general formula (I) as set forth in any of claims 1 and 4 to 7 to textile material in the course of textile finishing.
- 25 11. A method of protecting dyed textile material against fading as claimed in claim 10, which comprises applying compounds (A) containing structural units of the general formula (I) as set forth in any of claims 1 and 4 to 7 to textile material in the course of laundering and/or laundry pre- or 30 aftertreatment.
12. A method of increasing the UV protection factor (UPF) of textile material, which comprises applying compounds (A) containing structural units of the general formula (I) as set 35 forth in any of claims 1 and 4 to 7 to textile material in the course of textile finishing.
13. A method of increasing the UV protection factor (UPF) of textile material as claimed in claim 12, which comprises 40 applying compounds (A) containing structural units of the general formula (I) as set forth in any of claims 1 and 4 to 7 to textile material in the course of laundering and/or laundry pre- or aftertreatment.

14. A laundry detergent comprising from 0.01 to 10% by weight of at least one compound (A) containing structural units of the general formula (I) as set forth in claims 1 and 4 to 7 as well as other, customary ingredients.

5

15. A laundry pre- and aftertreatment comprising from 0.01 to 25% by weight of at least one compound (A) containing structural units of the general formula (I) as set forth in claims 1 and 4 to 7 as well as other, customary ingredients.

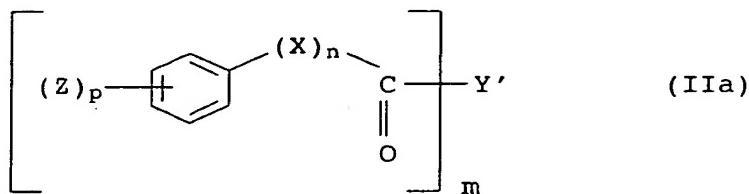
10

16. A laundry pre- and aftertreatment as claimed in claim 15, further comprising from 1 to 50% by weight of one or more cationic surfactants selected from the group consisting of quaternary diesterammonium salts, quaternary

15 tetraalkylammonium salts, quaternary diamidoammonium salts, amidoamino esters and imidazolines.

17. A compound (A') conforming to the general formula (IIa)

20



25

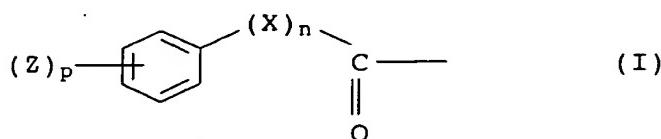
where

30 Y' is the radical of an aliphatic, cycloaliphatic or mixed aliphatic-aromatic group which has at least m' primary and/or secondary amino groups or m' hydroxyl groups or together at least m' primary and/or secondary amino groups and hydroxyl groups, which is capable of forming amide or ester bonds with the structural unit of the

35

general formula (I)

40



45

and the group Y' mentioned may also be quaternized at tertiary and/or free primary and/or secondary atoms present or still present,

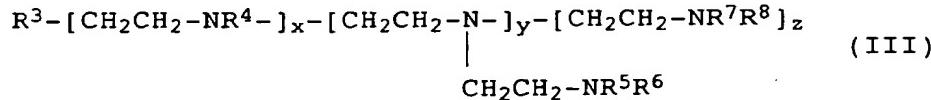
m' is a number from 1 to 200, where the number m of the structural units (I) accounts for from 10 to 100% of m' , with the proviso that, however, at least one structural unit (I) is present in the compounds (II),

5

the group Y' being chosen from

- (a) an aliphatic or cycloaliphatic oligoamine chosen from the group consisting of diethylenetriamine, dipropylenetriamine, triethylenetetramine, tetraethylenepentamine, pentaethylenehexamine, N-(2-aminoethyl)-1,3-propanediamine, N,N-dimethylethanolamine, diethanolamine, triethanolamine, 3-dimethylamino-1-propanol, N-(2-aminoethyl)ethanolamine, 3-(dimethylamino)propylamine, N,N'-bis(3-aminopropyl)-1,2-ethylenediamine, N,N,N',N'-tetrakis(3-aminopropyl)-1,2-ethylenediamine, N,N,N',N'-tetrakis[3-(C₁- to C₄-alkylamino)propyl]-1,2-ethylenediamine, N,N'-bis(3-aminopropyl)piperazine and N,N'-bis[3-(C₁- to C₄-alkylamino)propyl]piperazine;
- (b) a polyethyleneimine of the general formula (III)

25



30

which has an average molar mass (M_W) of from 200 to 1 000 000 and wherein the radicals R³ to R⁸ are independently hydrogen, linear or branched C₁- to C₂₀-alkyl, -alkoxy, -polyoxyethylene, -hydroxyalkyl, -(alkyl)carboxy, -phosphonoalkyl, -alkylamino radicals, C₂- to C₂₀-alkenyl radicals or C₆- to C₂₀-aryl, -aryloxy, -hydroxyaryl, -arylcarboxy or -arylamino radicals which may be further substituted, and R⁴ and R⁵ are additionally further polyethyleneimine polymer chains, and x, y and z are each independently 0 or an integer;

40

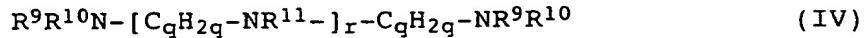
- (c) a polyamidoamine which has an average molar mass (M_W) of from 500 to 100 000 000, which is obtainable by reaction of C₄- to C₁₀-dicarboxylic acids with poly(C₂- to C₄-alkylene)polyamines having from 3 to 20 basic nitrogen atoms in the molecule and which has at least m' primary

35a

and/or secondary amino groups for forming amide bonds with the structural unit (I);

(d) a polyamine of the general formula (IV)

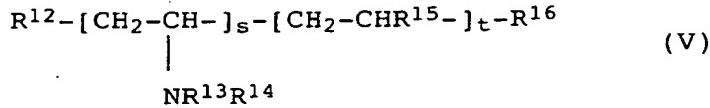
5



which has an average molar mass (M_w) of from 100 to 100 000 000 and wherein the radicals R^9 to R^{11} are independently hydrogen, linear or branched C_1 - to C_{20} -alkyl, -alkoxy, -polyoxoethylene, -hydroxyalkyl, -(alkyl)carboxy, -phosphonoalkyl, -alkylamino radicals, C_2 - to C_{20} -alkenyl radicals or C_6 - to C_{20} -aryl, -aryloxy, -hydroxyaryl, -arylcarboxy or -arylamino radicals which may be further substituted, q is an integer from 2 to 6 and r is an integer, wherein the alkylamino radicals mentioned may also be continued in the manner of dendrimers in the alkyl moiety;

20 (e) a polyvinylamine of the general formula (V)

25



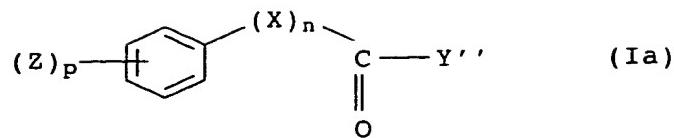
which has an average molar mass (M_w) of from 300 to 100 000 000 and wherein the radicals R^{12} to R^{16} are independently hydrogen, linear or branched C_1 - to C_{20} -alkyl, -alkoxy, -polyoxoethylene, -hydroxyalkyl, -(alkyl)carboxy, -phosphonoalkyl, -alkylamino radicals, C_2 - to C_{20} -alkenyl radicals or C_6 - to C_{20} -aryl, -aryloxy, -hydroxyaryl, -arylcarboxy or -arylamino radicals which may be further substituted, and R^{15} is additionally a formamidyl radical, s is an integer and t is 0 or an integer;

and X , Z , n and p are each as defined in claim 1.

40 18. A process for preparing compounds (A') conforming to the general formula (IIa) as set forth in claim 17, which comprises reacting carboxylic acid derivatives of the general formula (Ia)

45

35b



where Y'' is an alkyl group having from 1 to 4 carbon atoms, a halogen atom, an amino group optionally bearing one or two C_1 - to C_4 -alkyl groups or a hydroxyl group and the other variables are each as defined above,

10 with the parent compounds of Y' to form the corresponding
 15 carboxamide structures and then optionally quaternizing some or all of the tertiary and/or primary and/or secondary nitrogen atoms present or still present in the compounds (IIa).

19. A textile material comprising at least one compound (A)
 20 containing at least one structural unit of the general formula (I) as set forth in any of claims 1 and 4 to 7.

25

30

35

40

45

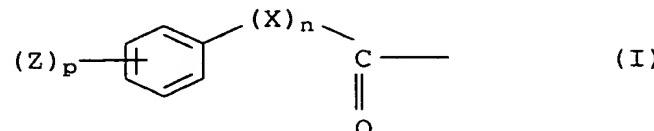
UV absorbers with affinity for textile fiber

Abstract

5

Disclosed is the use of compounds (A) containing at least one structural unit (I)

10



15

where

X is -CR¹=CR²- or C=O, where R¹ and R² are each hydrogen or essentially organic radicals,

20

Z denotes essentially organic radicals,

n is from 0 to 3, and

25 p is from 0 to 5,

as UV absorbers possessing affinity for textile fiber to protect human skin against harmful UV radiation and to protect dyed textile material against fading.

30

35

40

45